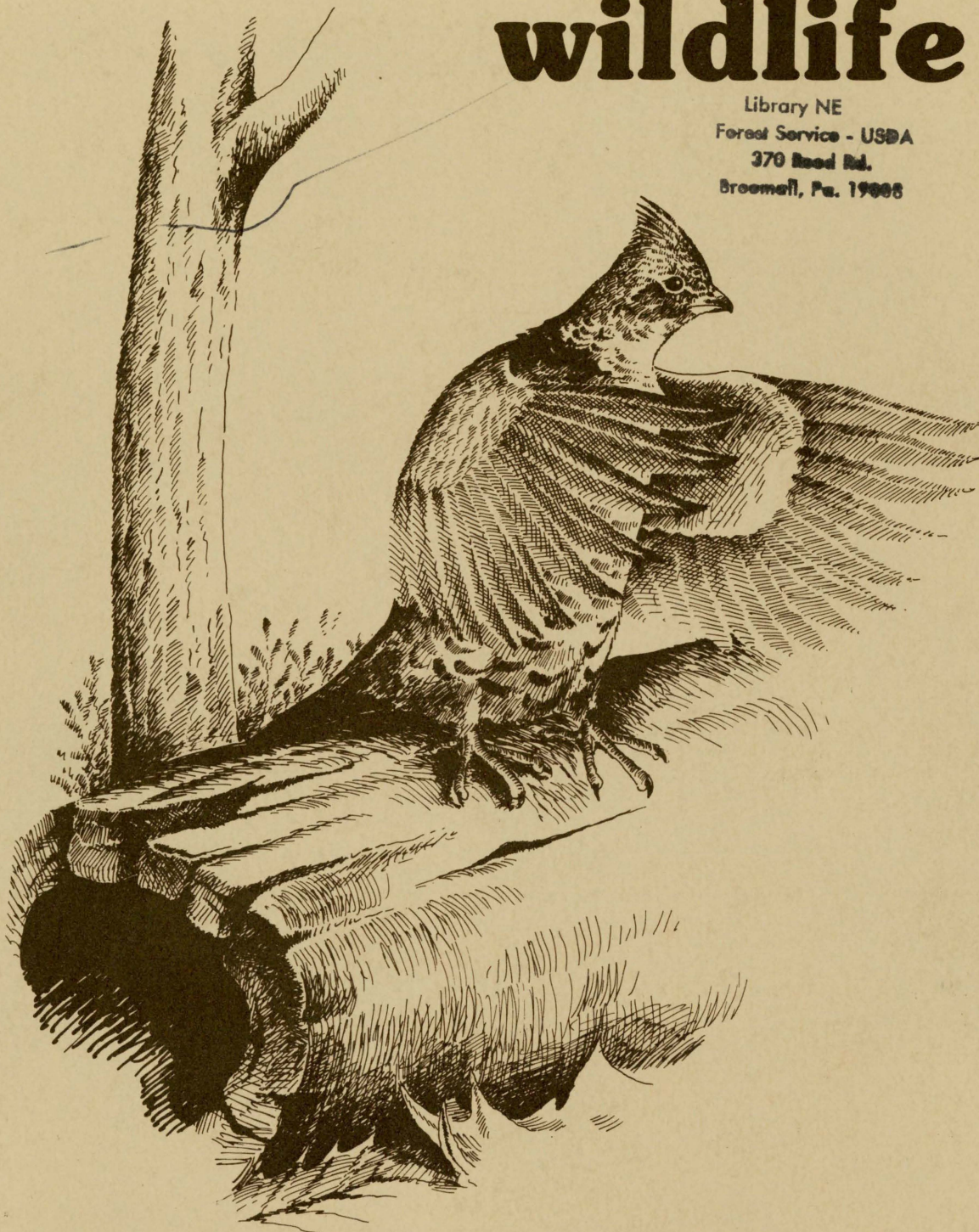


Timber sales and wildlife

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**Pennsylvania Game Commission in cooperation with:
Pennsylvania Department of Environmental Resources
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United States Forest Service**

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That tree — should it be cut or saved?

Before a chainsaw is started, some thoughtful planning is in order. After all, what is cut and what is not cut is something future generations will have to live with — or without. Define your objectives — timber, fuelwood, wildlife, aesthetics, watershed protection. If you have others, think them through.

You're looking over the sale area — a hollow tree stands out. It's a candidate for the saw. It can be cut down in five minutes. But how long did it take to grow and form? 50 years? 100 years? Where a limb decayed, there's a small entrance to the tree's hollow interior. How many squirrels saw the first light of day through that hole? How many might the tree cradle in future years? Should this tree be cut?

Every tree represents such a choice: to cut or not to cut? A timber sale is hundreds of choices. Many are routine dollar decisions; this includes the price of the log today and the value of the property tomorrow. Other cutting choices are influenced by values like scenery and wildlife. From landowner to logger, the after-cutting character of any sale area reflects the choices, needs, and biases of all those involved in the sale.

For instance, the contract logger may have a tree-size bias where everything above a 15-inch diameter is cut. A sale of this nature is easy to administer; the choice is automatic. There goes the one large white pine in the woodlot and a roost tree for wild turkeys. The cutter working for the logger puts his personal stamp on the sale. In the absence of contract guidelines, the cutter is on his own; trees with high wildlife value, such as active den trees, run the risk of being cut. Without their cavity nest, pileated woodpeckers won't be back.

Since nothing in the buyer's contract with the landowner specified consideration for wildlife, and because the cutter's personal priorities and skills did not include wildlife, certain wildlife values were lost. Whatever happens to wildlife, good or bad, is largely incidental to other considerations. Then who introduces a wildlife bias? You! If it's introduced, you do it. You're a landowner, a logger, a consulting forester, a cutter; you're someone who'll take some extra steps.

That tree, should it be cut or saved? We hope that some of the information and illustrations in this booklet help you make choices that you and wildlife can live with. We hope you'll have, at least once in awhile and here and there, a wildlife bias.

A guide to the contents

You've made a decision to harvest some trees 1

Forest owners, loggers, farmers, foresters, fuelwood cutters — whether you are harvesting trees on many acres or just cutting a few cords of wood to heat your home, you will affect wildlife and its habitat. Proper timber management can benefit wildlife, poor management may be detrimental. Think about your choices of what to cut and what to leave for wildlife.

Illustration pairs of different timber sales and cutting situations 2

Different timber cutting situations are illustrated from the standpoint of their wildlife values. There are two illustrations presented for each of four different types of timber sales. One drawing shows a cutting made with consideration for the needs of wildlife. A companion illustration shows the same cutting without wildlife considerations.

Stream buffer 10

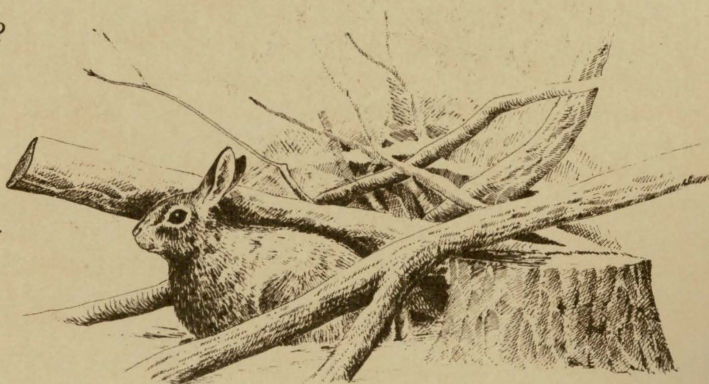
A corridor of trees left along both sides of watercourses will shade the water and provide wildlife habitat.

Log-loading site 11

A cover of grasses and legumes will prevent erosion and sedimentation from log-loading sites and haul roads. These herbaceous openings attract many kinds of wildlife.

Timber sale contract 12

For the protection of both buyer and seller, every timber sale should have a written contract. A sample contract can be found on page 13.





You've made a decision to harvest some trees

A logger or woods operator does not like to waste time cutting down trees that he cannot sell or handle efficiently with his equipment. Trees like 1, 4, and 5 are often left.

A forester with an eye for future values will mark poorly-formed and low dollar-value tree species for cutting, so remaining, better-formed trees and high-value species have less competition. A forester not attuned to wildlife considerations might mark the large, limby wolf tree 4 and the hollow tree 5 for cutting.

A fuelwood cutter thinks not of future values, but of what's convenient to cut and lug out of the woods. Even though potentially valuable when they mature, better-formed trees, like 2 and 3, will be cut simply because they are small, available, and easy to prepare into firewood.

A wildlifer will want to save tree 1 for the cover it provides. He would not care if tree 2 was cut, as this would free the small evergreen to grow faster. The large, wolfy tree 4 may be the best acorn producer in the area, and tree 5 has a den. A wildlifer would want to see these trees and others like them saved.

The decision to cut or save rests with you, the landowner. Do not wholly surrender it to any single interest. Seek technical advice and assistance. Then design a timber sale contract that will help achieve your forest management objectives. Finally, if you're physically able, work with those who cut on your forest. If there is a site you don't want cut or individual trees you want saved, mark them clearly.



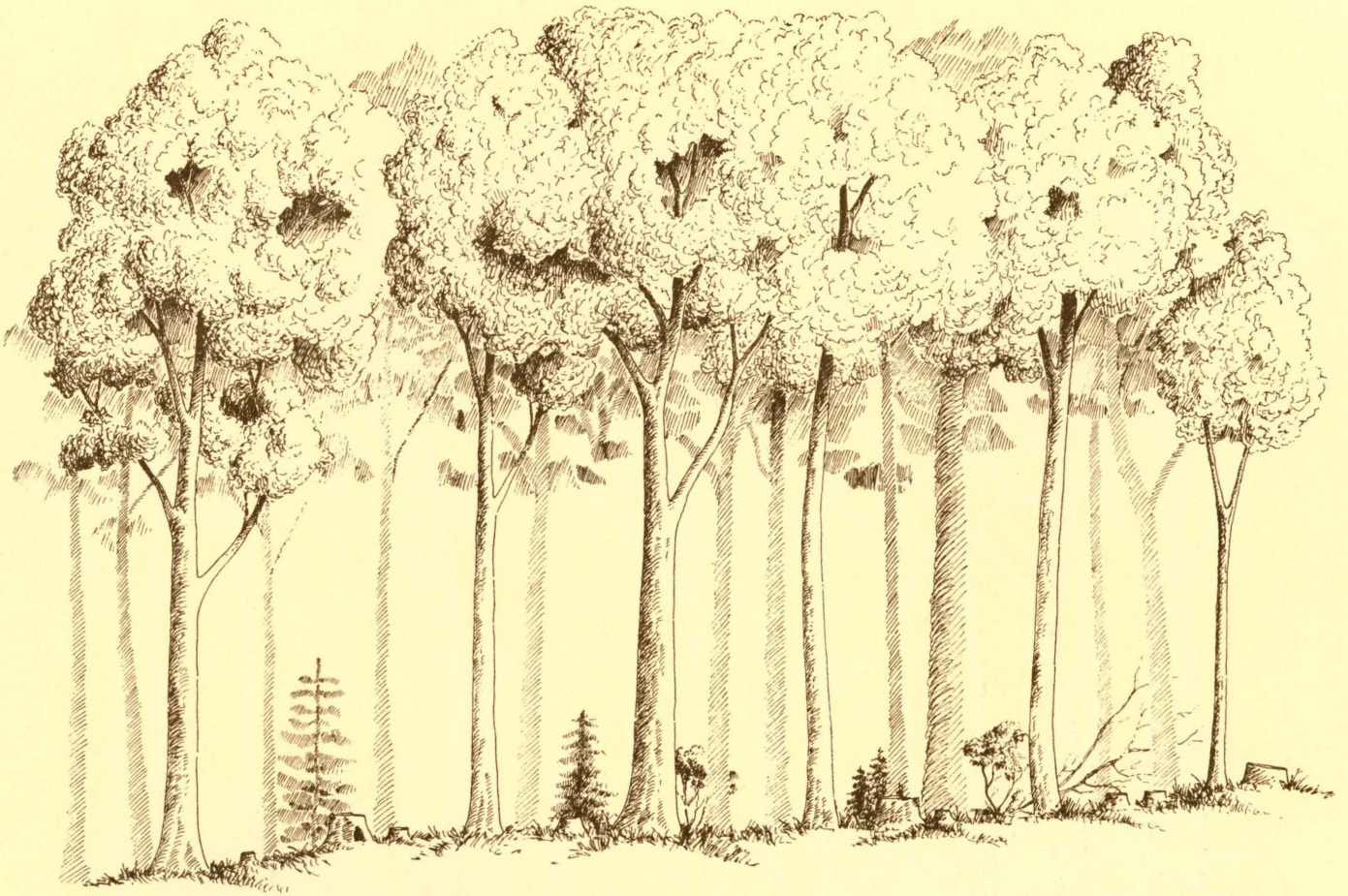
A partial cut in a predominantly oak woodlot with wildlife considerations

Not many white pines or shagbark hickories reach the canopy of this oak-dominated woodlot — one of each is illustrated. The landowner specified in the contract to save these and a few other scarce species from cutting. He can reinforce his concern by marking such trees and pointing them out to the buyer. By doing this he has saved important roosting and nesting cover; and squirrels may be able to find hickory nuts when acorn crops are poor.

A mixture of large and small trees and trees of different kinds provides wildlife with more food and cover than is available in a woodlot that lacks such variety.

In some instances, saving even a single mature tree that is uncommon in your woodlot could preserve a

combination of wildlife values that is not provided by more commonly occurring trees. In the above example, the landowner saved a white pine and the opportunity to see the kinds of wildlife that are attracted to this tree species. For instance, the yellow-bellied sapsucker feeds on white pine sap, porcupines gnaw its bark, and deer browse growing tips and needles. Pine seeds are eaten by squirrels and are a preferred food of 25 bird species, including the wild turkey, mourning dove, and cardinal. At least 32 kinds of birds use white pines for nesting. Other birds and mammals use it for cover. Mature pines left for seed produce clumps of young pine, which in turn attract more wildlife. So saving even a single mature tree can be important to wildlife.



A partial cut in a predominantly oak woodlot without wildlife considerations

No thought was given to saving uncommon tree species. The lone hickory was cut, as was the single large white pine. As a result, this woodlot of mostly oak has little food for wildlife during years of acorn scarcity.

By cutting the only mature pine and hickory, the potential of the woodland to support the kinds of wildlife that are attracted to these trees has been reduced for

many years.

For a greater variety of wildlife, harvest pulpwood, fuelwood, and sawlogs from tree species that are most abundant, in the above example — oak. Removal of logging residue and slash, such as tree tops and limbs, also removes wildlife cover.



A partial cut in mixed hardwoods with wildlife considerations

Exceptionally large, wolfy trees, with their crowns in the overstory, may be good seed producers. The big oak on the right was saved because of its outstanding size. During years of bumper acorn crops, this tree would be visited by bear, deer, and many kinds of birds including the wild turkey, grouse, blue jay, and nuthatch.

Since most of the trees in this stand were sound, special efforts were made to save any tree with a cavity suitable for wildlife. The crooked, hollow tree to the left would provide refuge for a squirrel, winter quarters for a screech owl, or a nest site for a bee colony. Over the

years it could shelter all of these species and others.

If you can stand anywhere in the timber sale area and observe a number of hollow trees, some should be candidates for cutting. A few of them may be girdled rather than cut down. Left standing, such hollow, dead snags do not compete with nearby trees for growing space, and for many years they are valuable to wildlife.

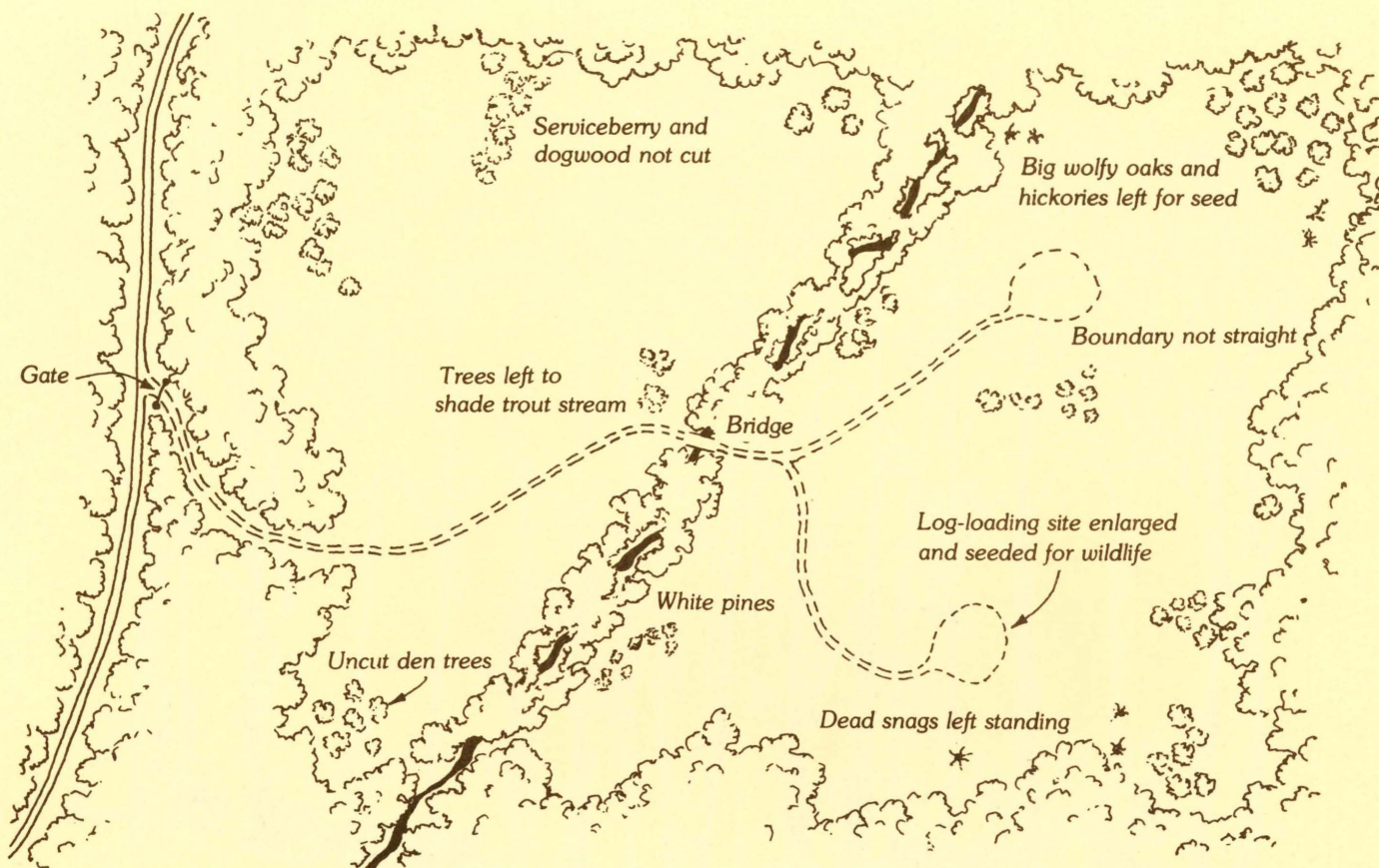
Leave a few living and dead hollow trees on every acre, particularly along woodland edges and streams. Remove trees that are safety hazards to those enjoying and working in your woods.



A partial cut in mixed hardwoods without wildlife considerations

When virtually every hollow tree was thinned out of this woodlot, so too were winter quarters and nesting chances for many cavity-using wildlife species. In Pennsylvania, 33 kinds of birds and 17 mammal species use tree cavities. Whether it's squirrels for hunting, nuthatches or downy

woodpeckers that brighten the woodland, kestrels or screech owls after mice, or songbirds that help reduce insect populations, let's not endanger their homes through oversight.



Clearcut with wildlife considerations

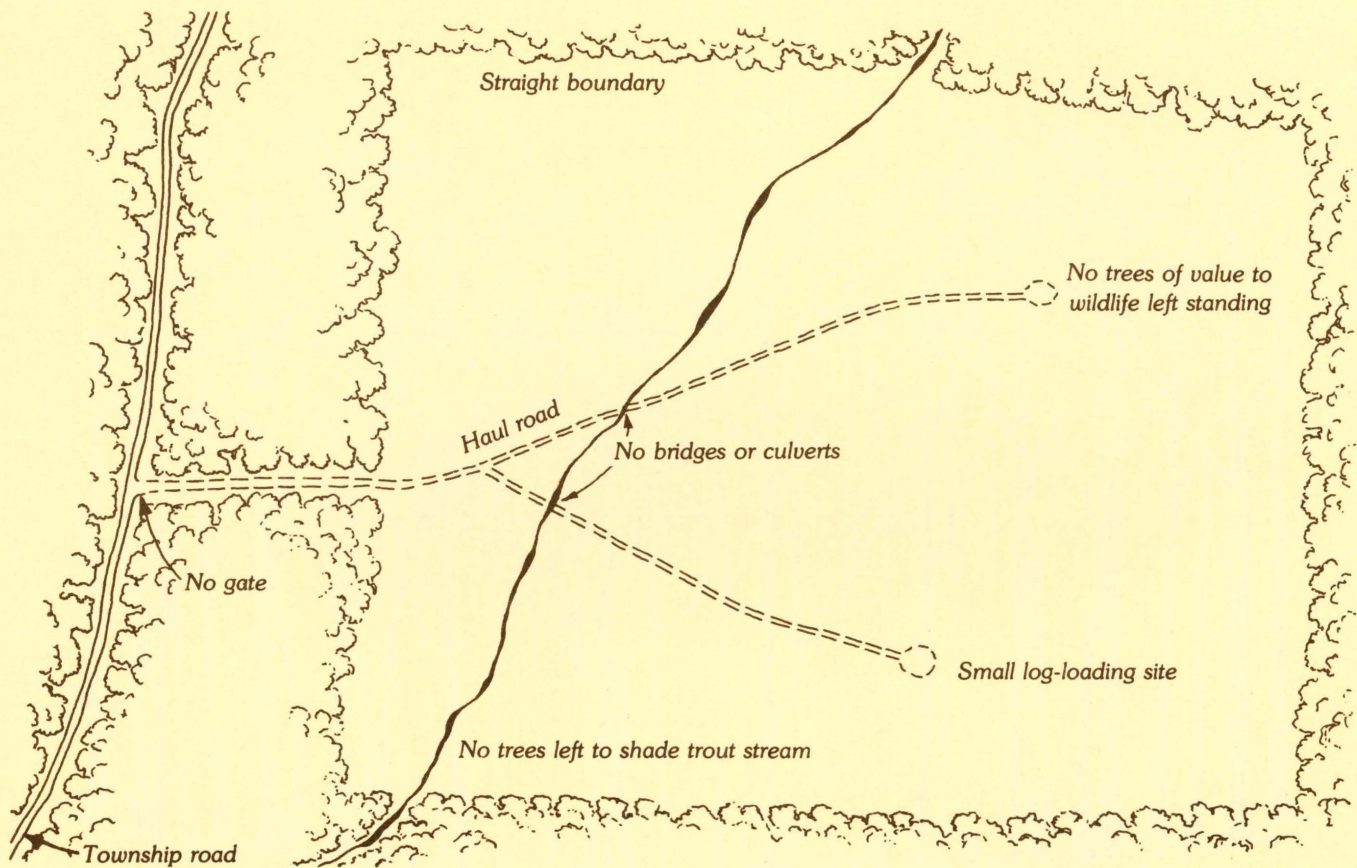
Some thought, beyond connecting four straight lines and cutting everything in between, went into planning this clearcut. Stream-side trees were left to shade the trout stream. Hollow den trees were left uncut — good for squirrels and maybe a family of raccoons. Hickories add an extra food and cover species to the oak-dominated site.

White pines were left to drop seeds into the new clearcut. A future stand of evergreens near the stream will provide winter cover for deer; later, wild turkeys will roost

in their shelter.

The large log-loading site, seeded after completion of the sale, attracts insect food for visiting grouse broods. Within weeks of seeding, such grassy clearings provide food for deer and rabbits. Seed-eating birds stop to feed before their fall migration.

A gate was installed to protect the newly seeded and properly drained haul road. The road itself is angled around to block view of clearcut from highway



Clearcut without wildlife considerations

The main haul road lacks a gate where it joins the township road at a right angle. This promotes weekend vandalism, fuelwood theft, and use by unauthorized vehicles.

No trees were left to shade the trout stream and haul roads cross the stream without bridges or culverts. These practices cause siltation and higher water temperatures;

both disadvantages for fish and aquatic life.

The small log-loading site will soon be overgrown with trees and shrubs. This reduces its value to wildlife as sun-loving herbaceous plants disappear.

The clearcut boundaries are straight, the edges uninteresting. All live and dead snags and den trees were cut, as were the only hickory trees in the neighborhood.



Woodland border with wildlife considerations

The edge or border between cut and uncut forest, or between forest and field, is home for a large variety of wildlife and is visited by still others. Here species that thrive in young, brushy forests or fields meet those that prefer the big woods. Here, too, we find animals that pass back and forth between mature forest and clearcut or field in their daily quest for food and cover.

Woodland borders should have irregular rather than

straight edges. When cutting along borders, save special trees — den trees, tall snags, and scarce species. Trees, shrubs, and vines that bear nuts and fleshy fruits are especially valuable along woodland edges since sunlight stimulates heavy fruiting. Butternut, hickory, cucumbertree, blackgum, serviceberry, flowering and gray dogwood, sassafras, viburnum, blueberry, and grape are candidates to leave in woodland borders.



Woodland border without wildlife considerations

A hollow beech tree was cut down. In this woodlot, composed mostly of oak, beech trees and cavities are scarce. The felled beech represents a double loss for wildlife since both the cavity and potential beechnuts are lost.

Woodland borders along crop fields and pastures, and clearcuts bounded by property lines often look like this.

Everything is cut back and the boundary is straight with no indentations. Abrupt, straight edges are uninteresting, harsh to the eye, and provide minimal wildlife benefits.

Squirrels and other cavity users displaced by cutting will be looking for temporary refuge or a new home. They will not find one near this edge.



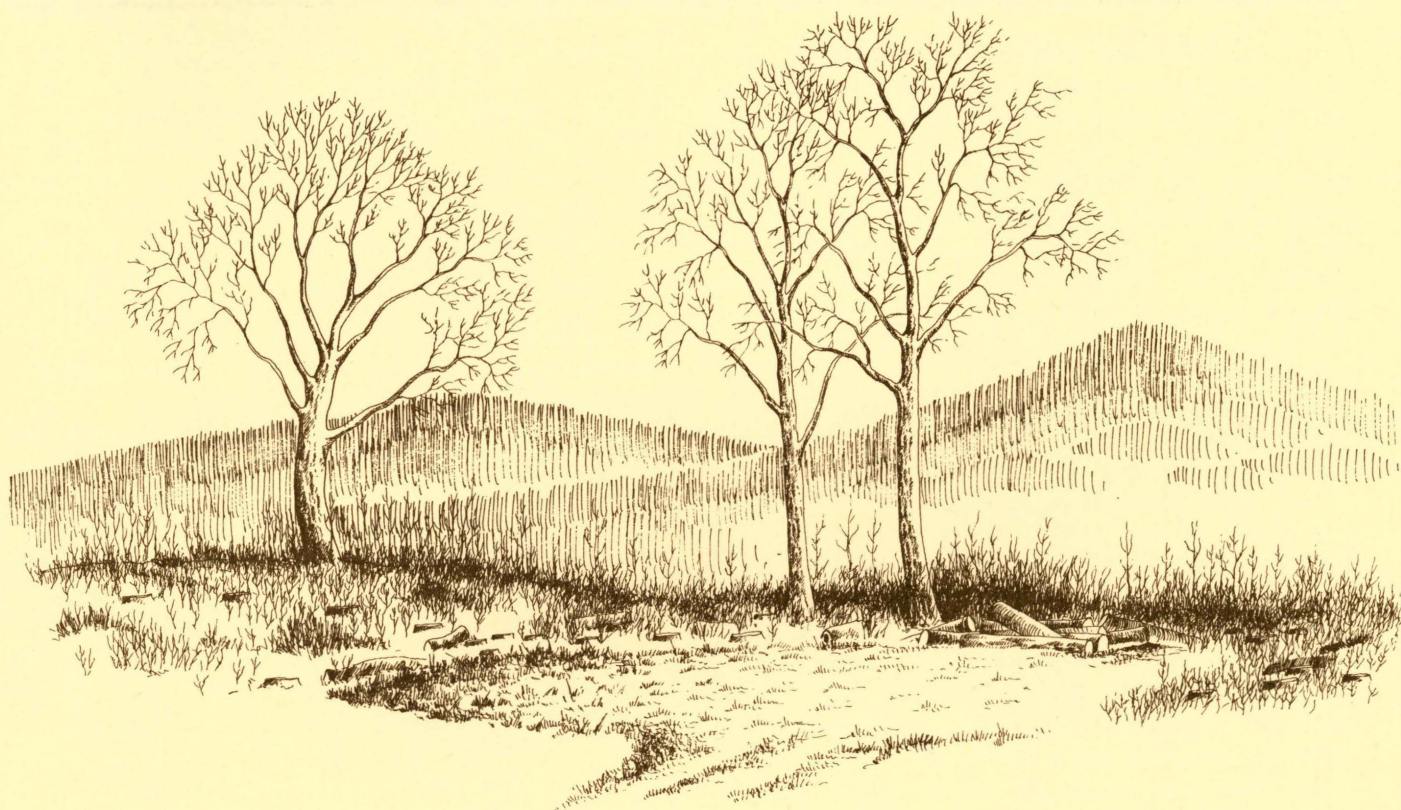
Stream buffer with wildlife considerations

Trees left on both sides of a stream provide a buffer strip that prevents warming of water. Woodland streams are exceptionally valuable fish and wildlife habitats. For fish and wildlife benefits, when clearcutting in a valley bottom, leave a 50- to 100-foot-wide buffer strip of trees on both sides of water courses.

As long as shade is maintained over the stream and there is no threat of erosion, a few trees may be removed

in buffer strips. In such instances, special efforts are required to keep slash and logging equipment out of the stream. Keep roads and skid trails at least 50 feet away from watercourses, farther when logging on slopes.

Save individual trees along streams such as scarce species, snags, wolf trees, den trees, and those with special wildlife food and cover value.



Log-loading site with consideration for wildlife and erosion control

Log-loading sites and haul roads that are far from other clearings provide excellent wildlife habitat when seeded with grasses and legumes. Small loading sites are satisfactory when other clearings are nearby. But in big woods country, to increase wildlife values, loading sites should be enlarged to one-half acre or more. Turkey and grouse broods, fox, deer, rabbits, and other wildlife frequent such openings in the forest.

When logging is completed, grade out the wheel ruts and install water bars with a skidder blade. Soil packed by truck wheels should be loosened. If a stone rake or disk is not available for this, drag a tree top with long limb stubs left on.

Next, lime and fertilize. Compared with farming where crops are regularly removed, less lime and fertilizer is required for an acceptable catch. For a haul road that averages 16-feet wide, apply about 10 lbs of 10-20-20 fertilizer and 100 lbs of lime for every 100 feet of road.

Use 100 lbs of fertilizer and 1,000 lbs of lime per acre of loading site. This material can be spread from the back of a pickup truck or use a push spreader. For best results, drag again to mix materials with soil.

Finally, seed. For sunny sites mix 20 lbs of perennial rye grass with 2 lbs of timothy and 6 lbs of inoculated birdsfoot trefoil. This amount will cover one acre; or use 1.5 lbs of this mixture for every 100 feet of a 16-foot-wide haul road. If the logging road is shaded by remaining trees, use instead a mixture of 10 lbs of perennial rye grass and 30 lbs of creeping red fescue. Seed can be spread by hand from a bucket or by using a hand-cranked cyclone seeder. Spring and fall seedings are more successful than summer seedings. An inexpensive hay or straw mulch will also improve success. Your seed supply house can recommend special mixtures for exceptionally wet or dry sites.

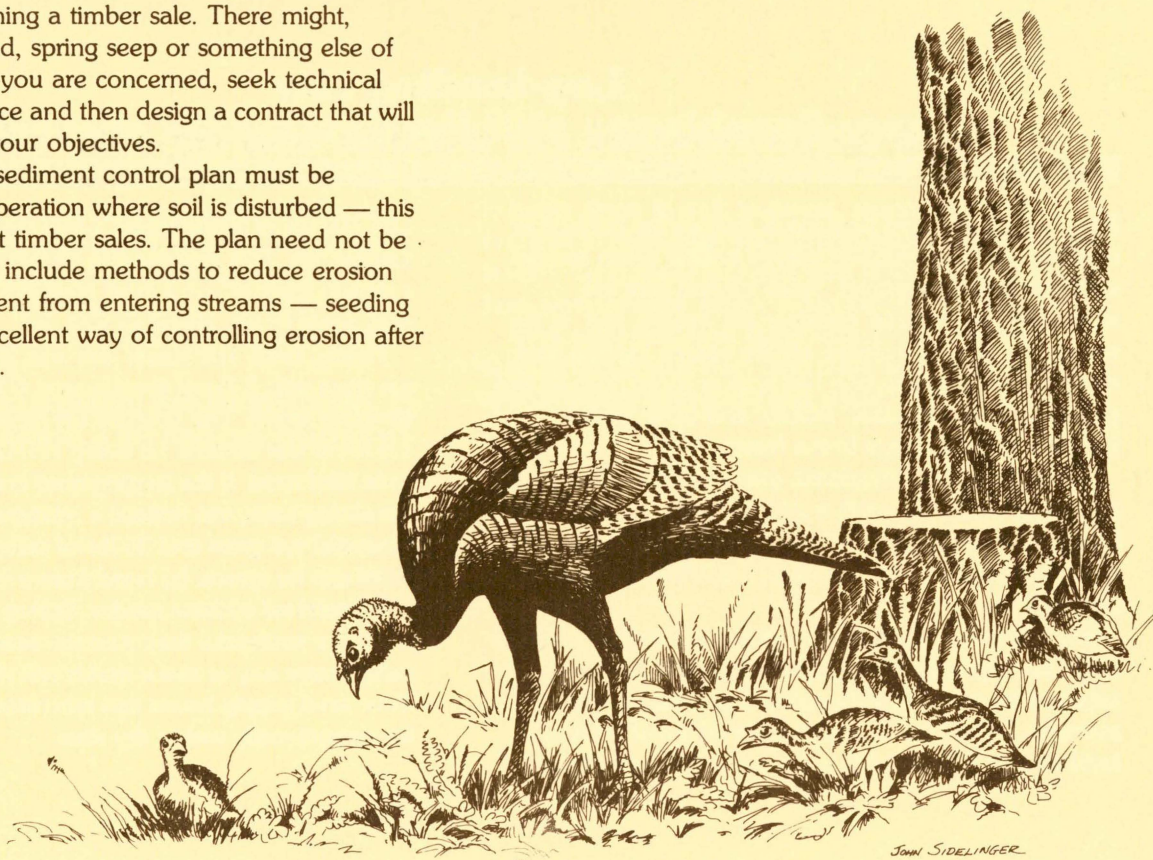
Timber sale contract

A contract should include: description and location of the property; description of the trees to be cut — or not to be cut; price of the timber and financial arrangements; termination date; special features such as bridges, culverts, log-loading sites, seeding materials; provisions to prevent erosion; guaranteed title to products and accuracy of boundaries; and provisions to settle disputes. A good contract can help to prevent misunderstandings and problems by pointing out the rights and responsibilities of both parties.

The example of a timber sale contract on page 13 is for one property. Each property is different and every contract should reflect those different conditions. Only a few hemlocks, hickory and black gum grew in Mr. Hamilton's woodlot. On other sites these species might be so common that only a selected few might be reserved, the remainder harvested. You do not have to save every den tree or every Juneberry in your woodlot, but consider saving some of each type of tree you do have. In northern areas this might mean saving a few oaks, in southern areas maybe cherry is scarce, and statewide evergreens are in short supply. The goal should be to maintain or increase the mix of tree and shrub species and sizes on the property.

Unlike the sample property, there may not be a stream where you're planning a timber sale. There might, however, be a pond, spring seep or something else of value to wildlife. If you are concerned, seek technical advice and assistance and then design a contract that will help you achieve your objectives.

An erosion and sediment control plan must be prepared for any operation where soil is disturbed — this would include most timber sales. The plan need not be elaborate but must include methods to reduce erosion and prevent sediment from entering streams — seeding for wildlife is an excellent way of controlling erosion after a sale is completed.



Sample timber sale contract with wildlife considerations

I, Mark Hamilton of Masten, Pennsylvania (Purchaser) agree to purchase from Woodrow Meristem of Pomfret Center, Pennsylvania (Seller) the trees described below.

I. Location of Sale: The 42-acre woodland is in Derry Township, Tioga County, Pennsylvania, at the intersection of PA Route 804 and Legislative Route 7221, as shown on the attached map.

II. Trees to be Cut: Cut all designated trees and/or trees marked with yellow paint. Reserve all hemlock, hickory, dogwood, serviceberry, and black gum. Additional trees of special wildlife value to be left are marked with blue paint. Also not to be cut are any trees within 100 feet of Brougher Run except those marked with yellow paint by Seller.

III. Conditions of Sale:

A. The Purchaser agrees to the following:

(1) To pay the Seller the sum of \$16,350 for the above designated or marked trees, and to make payment in advance of cutting.

(2) To waive all claim to the above described trees unless they are cut and removed on or before one calendar year from the date on this contract. In the event Purchaser is, due to circumstances beyond his control, unable to complete the sale in the time allowed, the Seller and Purchaser may agree on an extension of time for this contract.

(3) To construct a log-loading site approximately one-half acre in size in the southeast portion of the tract at a location agreed upon by the Seller and Purchaser.

(4) To do all in his power to prevent and suppress forest fires on, or threatening, the sale area.

(5) To avoid unnecessary injury to all trees not designated to be cut.

(6) To repair damages caused by logging to ditches, fences, bridges, roads, trails, or other improvements damaged beyond ordinary wear and tear.

(7) Not to assign this Agreement in whole or in part without the written consent of the Seller.

(8) All tops and slash from felled trees within 25 feet of the adjoining highway will be removed. No slash will be left across or on the public road, cleared field, or Brougher Run. Tops may be left on skid trails to prevent erosion.

(9) To leave standing all marked property boundary trees.

(10) Purchaser will take precautions to prevent soil erosion and other conditions detrimental to the property resulting from logging operation. Should such conditions occur, they will be corrected by the purchaser. He also will remove all oil cans, paper, and other trash resulting from the operation.

(11) To furnish to Seller 20 pounds of perennial rye grass seed, 2 pounds of timothy seed, and 6 pounds of inoculated birdsfoot trefoil which Seller will apply to the log-loading site and roads upon completion of this timber sale.

(12) To maintain public liability and workman's compensation insurance policies for the duration of this contract.

B. The Seller agrees to the following:

(1) To guarantee title to the forest products covered by this Agreement, and to defend it against all claims at his expense.

(2) The property boundary lines shown to the Purchaser by the Seller are correct as located on the attached map. The Seller will save harmless the Purchaser from all trespass claims originating as a result of errors in the boundary line location made by the Seller.

(3) To allow the Purchaser to make necessary logging-road improvements such as bridges and gates which shall be removed or left in place as agreed upon by the Seller and the Purchaser. Trees designated for cutting may be used to construct such improvements.

(4) To grant freedom-of-entry and right-of-way to the purchaser and his employees on and across the area covered by this Agreement, and also other privileges usually extended to purchasers of timber which are not specifically covered, provided they do not conflict with specific provisions of this Agreement.

C. In case of dispute over the terms of this Agreement, we agree to accept the decision of an Arbitration Board of three selected persons as final. Each of the contracting parties will select one person, and the two selected will select a third to form this Board.

Signed this _____ day of _____, 19____

Witness:

(Signed)

Purchaser

Seller

Timber sales and wildlife

The long range health of a forest community — of your land — should not be sacrificed for a few extra, immediate dollars. In the ledgers of time and husbandry, good land health is good business, and that's what conservation and this booklet are about.

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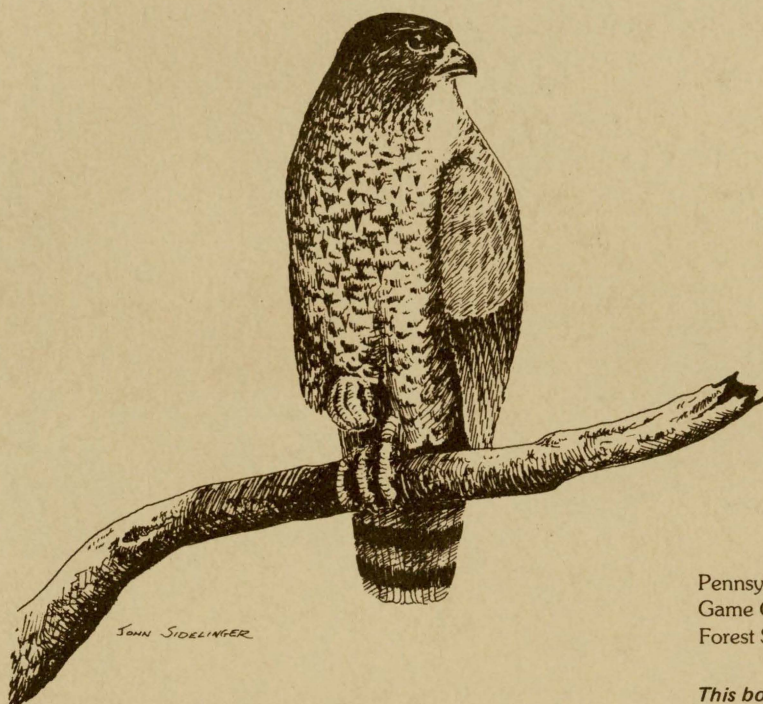
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